

REMARKS

The Office Action dated September 29, 2009 has been carefully considered. Claim 36 was canceled. Claims 1, 8, 15, 24, 35 and 38 were amended. Support for the amended claims may be found in paragraph 26 of the Specification, as published. The above claim amendments and following remarks are being submitted as a full and complete response to the Office Action. Authorization is granted to charge counsel's Deposit Account No. 01-2300, referencing Attorney Docket No. 030687-00586, for any additional fees necessary for entry of this Response.

Reconsideration of this application is respectfully requested in view of the above claim amendments and following remarks.

Specification

The specification was amended to correct informalities identified in the Office Action. Accordingly, withdrawal of the objection to the Specification is respectfully requested.

Rejections under 35 U.S.C. § 112

Claim 36 was rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. As indicated above, claim 36 was canceled. Accordingly, withdrawal of the rejection is respectfully requested.

Rejections under 35 U.S.C. § 103

In the Office Action, all pending claims 1-3, 5-10, 12-17, 19-21, 24, 26-31 and 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bamji (US Patent No. 6,323,942) in view of Nishikado (US Patent No. 5,995,883). Claims 4, 11, 18, 28, 34 and 37 were rejected

under 35 U.S.C. § 103(a) as being unpatentable over Bamji and Nishikado in view of Ruffner (US Patent No. 6,338,013). The rejections are respectfully traversed.

As indicated above, independent claims 1, 8 15 and 24 were amended to recite an “infrared sensor including: (a) an infrared light source configured to produce a plurality of modulated pulses of infrared light directed toward the environment of the robot; and (b) at least one optic element configured to focus a plurality of reflections of the infrared light pulses from the environment of the robot to the 2D array of detectors, causing the detection of the 2D array of detectors, wherein the modulated pulses enable detection of low-energy deffuse reflections” (emphasis added). Independent claim 8, 15 and 24 were amended in substantially similar manner. Applicants submit that Bamji, Nishikado and Ruffner, taken alone or in combination, do not disclose or even suggest this subject matter.

Bamji discloses an imaging system that includes a light source that emits infrared light pulses and a two-dimensional array of infrared detectors (Abstract; and col. 7, lines 26-30). However, Bamji does not disclose or even suggest that infrared light pulses are modulated to enable detection of low-energy deffuse reflections, as recited in amended claims 1, 8 15 and 24.

Nishikado discloses an autonomous vehicle that has a distance measuring sensor that periodically measures the distance to objects surrounding the vehicle and controls movement of the vehicle as to avoid these objects (Abstract). The sensor detects infrared signals reflected from the objects, determines intensity of the received signals and measures distance to the object based on the signal intensity (col. 3, line 10; col. 4, ll. 13-22 and 36-53). However, Nishikado fails to disclose or even suggest that infrared signals are modulated to enable detection of low-energy deffuse reflections, as recited in amended claims 1, 8 15 and 24.

Ruffner discloses a mobile appliance for lawn mowing, fertilizing, and edging, floor vacuuming, waxing, and polishing, or rug shampooing (Abstract). The appliance includes proximity detectors, such as infrared sensors, to detect and avoid potential obstacles (col. 12, lines 15-25). However, Ruffner does not disclose or even suggest that modulated signals may be used to detect of low-energy diffuse reflections, as recited in amended claims 1, 8 15 and 24.

Therefore, amended independent claim 1, 8 15 and 24 is patentable over Bamji, Nishikado and Ruffner, taken alone or in alleged combination.

Moreover, dependent claims 2-7, 9-14, 16-21, 23-31, 34-35 and 37-38 are patentable over Bamji, Nishikado and Ruffner at least because of their dependency on independent claims 1, 8, 15 and 24, respectively, and for the additional features that they recite.

Based on the foregoing, withdrawal of rejections of claims under Section 103 is respectfully requested.

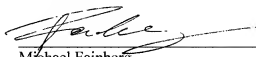
Conclusion

For all of the above reasons, it is respectfully submitted that pending claims 1-21 and 24-31, 34-35 and 37-38 are in condition for allowance and a Notice of Allowability is earnestly solicited. If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact the Applicants' undersigned counsel at the telephone number, indicated below, to arrange for an interview to expedite the disposition of this application.

Respectfully submitted,

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Enclosures: Petition for Extension of Time (3 months)
Request for Continued Examination